AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): ~~Portable~~ A portable control, program and/or teach terminal provided for the connection to a control unit ~~(5)~~ of movements according to multiple axes of an automatic apparatus ~~(1)~~ bearing a tool ~~(4), such as a robot or similar~~, the terminal ~~(6)~~ having a longitudinally extended body defining a first portion ~~(10)~~ and a second portion ~~(11)~~ comprising an area of union to the first portion ~~(10)~~, wherein in correspondence with a front side of the first portion ~~(10)~~ a display device ~~(D)~~ is provided and in correspondence with a front side of the second portion ~~(11)~~ a multiplicity of keys is provided, said multiplicity comprising:

[[-]] a plurality of motion keys ~~(14)~~ able to be operated manually to provide the control unit ~~(5)~~ with a respective command signal for the apparatus ~~(1)~~, the command signal being aimed at causing the tool ~~(4)~~ to execute a rotation or a translation motion about or along an axis corresponding to the operated motion key ~~(14)~~,

[[-]] a plurality of teaching keys ~~(15-24, 26)~~, able to be operated manually for programming the control unit ~~(5)~~ and/or controlling the apparatus ~~(1)~~ and/or storing a position reached by a predefined point ~~(TCP)~~ of the tool ~~(4)~~ as a result of a motion of the apparatus ~~(1)~~,

~~characterised in that~~ wherein

[[-]] the second portion ~~(11)~~ of the body of the terminal ~~(6)~~ has a width which progressively decreases until reaching said area of union,

[[-]] ~~at least one between~~ said plurality of motion keys ~~(14) and said plurality of teaching keys (15-24, 26)~~ comprises a first and a second series of keys ~~(14)~~ being positioned each along a respective longitudinal side of the second portion ~~(11)~~, preferably in a substantially symmetrical fashion to each other, and

[[-]] the ~~other between said plurality of motion keys (14) and~~ said plurality of teaching keys ~~(15-24, 26)~~ comprises a group of keys ~~(15-22, 26)~~ being positioned within or close to said area of union.

2. (currently amended): ~~Terminal~~ The terminal as claimed in claim 1, ~~characterised in that~~ the first series consists of keys for controlling translation movements and the second series consists of keys for controlling rotation movements.

3. (currently amended): ~~Terminal~~ The terminal as claimed in claim 1, ~~characterised in that~~ the body comprises a rear part ~~wherein~~ in which a longitudinally extended recess ~~(12)~~ is defined, having two opposite longitudinal sides, each longitudinal side extending substantially parallel to a respective side surface of the second portion.

4. (currently amended): ~~Terminal~~ The terminal as claimed in claim 1, ~~characterised in that the terminal (6) comprises~~ further comprising a safety device of the "dead man" type ~~(13)~~ and ~~that~~ the body ~~comprises~~ comprising a rear part wherein a longitudinally extended recess ~~(12)~~ is defined, from each of two opposite longitudinal sides of the recess ~~(12)~~ a respective elongated button projecting towards the interior of the recess ~~an elongated button (13)~~, each elongated button ~~(13)~~ being part of the safety device.

5. (currently amended): ~~Terminal~~ The terminal as claimed in claim 1, ~~characterised in that~~

~~it comprises~~ further comprising selection means ~~(18)~~, able to be operated manually to select a desired co-ordinate system among a plurality of co-ordinate systems ("Base, "Tool", "Joints") stored in the control unit ~~(5)~~, that the operation of the motion keys ~~(14)~~ depends on a selection made through the selection means ~~(18)~~ and that said command signal is aimed at causing the tool ~~(4)~~ to execute a rotation or a translation motion about or along an axis corresponding to the operated motion key ~~(14)~~, in the co-ordinate system ("Base, "Tool", "Joints") selected using the selection means ~~(18)~~.

6. (currently amended): ~~Terminal~~ The terminal as claimed in claim 5, ~~characterised in that it further comprises~~ further comprising additional motion control means ~~(40, 41)~~, able to be operated manually instead of the motion control means ~~(14)~~, to provide the control unit ~~(5)~~ with a respective signal for controlling the apparatus ~~(1)~~ aimed at causing a displacement of the predefined point ~~(TCP)~~ of the tool ~~(4)~~ relative to a previously set reference point ~~(CO)~~, where

[[-]] the position of the reference point ~~(CO)~~ is capable of being modified,

[[-]] the terminal ~~(6)~~ comprises means ~~(D; T)~~ for modifying the position of the reference point ~~(CO)~~,

[[-]] the signal for controlling the apparatus ~~(1)~~ generated as a result of the operation of the additional motion control means ~~(40, 41)~~ is independent from the co-ordinate system ("Base, "Tool", "Joints") selected through the selection means ~~(18)~~.

7. (currently amended): ~~Terminal~~The terminal as claimed in claim 6, ~~characterised in that the~~ wherein said additional motion control means ~~(40, 41) are~~ is positioned in a central part of the second portion ~~(11)~~.

8. (currently amended): ~~Terminal~~The terminal as claimed in claim 6, ~~characterised in that the~~wherein said additional motion control means ~~(40, 41) are~~ is positioned between the first and the second series of motion keys ~~(14)~~.

9. (currently amended): ~~Terminal~~The terminal as claimed in claim 6, ~~characterised in that the~~wherein said additional motion control means ~~(40, 41) are~~ is able to be operated to cause Cartesian displacements of the predefined point of the tools ~~(TCP)~~ relative to the set reference point ~~(CO)~~.

10. (currently amended): ~~Terminal~~The terminal as claimed in claim 6, ~~characterised in that the~~wherein said additional motion control means ~~(40, 41)~~ can be operated to cause angular or rotary displacements about a respective axis of the predefined point of the tools ~~(TCP)~~.

11. (currently amended): ~~Terminal~~The terminal as claimed in claim 6, ~~characterised in that~~wherein the reference point ~~(CO)~~ is representative of the position of the terminal ~~(6)~~, and hence of a user ~~(7)~~ who supports it, relative to the apparatus ~~(7)~~.

12. (currently amended): ~~Terminal~~The terminal as claimed in ~~11laim~~ claim 2, ~~characterised in that the~~ wherein said additional motion control means ~~(40, 41)~~ can be operated to cause a displacement of the predefined point of the tool ~~(TCP)~~ closer, farther away, to the right, to the left, upwards or downwards relative to the position of the terminal ~~(6)~~, and hence of the user who supports it ~~(7)~~.

13. (currently amended): ~~Terminal~~The terminal as claimed in claim 11, ~~characterised in that the~~wherein said additional motion control means ~~(40, 41)~~ can be operated to cause a rotation of the predefined point of the tool ~~(TCP)~~ about a respective axis, counter-clockwise or

clockwise to the right, counter-clockwise or clockwise towards the position of the terminal ~~(6)~~ and counter-clockwise or clockwise upwards.

14. (currently amended): ~~Terminal~~The terminal as claimed in claim 11, ~~characterised in that the~~wherein said additional motion control means ~~(40, 41)~~ comprise a compass knob ~~(40)~~ able to be selectively operated in four lateral areas thereof to cause, in one of its operating modes, a displacement of the predefined point of the tool ~~(TCP)~~ closer, farther away, to the right or the left relative to the position of the terminal ~~(6)~~.

15. (currently amended): ~~Terminal~~The terminal as claimed in claim 11, ~~characterised in that the~~wherein said additional motion control means ~~(40, 41)~~ comprise a dual pressure key ~~(41)~~, able to be operated selectively at its two end areas to cause, in an operating mode thereof, a displacement of the predefined point of the tool ~~(TCP)~~ upwards or downwards relative to the position of the terminal ~~(6)~~.

16. (currently amended): ~~Terminal~~The terminal as claimed in claim 14, ~~characterised in that~~wherein the compass knob ~~(40)~~ can be selectively operated in four lateral areas thereof to cause, in an additional operating mode, a displacement of the predefined point of the tool ~~(TCP)~~ about a respective axis, counter-clockwise and clockwise to the right and counter-clockwise and clockwise towards the position of the terminal ~~(6)~~.

17. (currently amended): ~~Terminal~~The terminal as claimed in claim 15, ~~characterised in that~~wherein the dual pressure key ~~(41)~~ can be selectively operated at two end areas thereof to cause, in an additional operating mode, a rotation of the predefined point of the tool ~~(TCP)~~ about a respective axis, counter-clockwise or clockwise upwards.

18. (currently amended): ~~Terminal~~The terminal as claimed in claim 6, ~~characterised in that the~~wherein said means ~~(D; T)~~ for modifying the position of the reference point ~~(CO)~~ comprises an information input page capable of being displayed on the display device ~~(D)~~.

19. (currently amended): ~~Terminal~~The terminal as claimed in claim 6, ~~characterised in that the~~wherein said means ~~(D; T)~~ for modifying the position of the reference point ~~(CO)~~ comprise means for generating graphic information on the display device ~~(D)~~, the graphic information being representative of the position of the reference point ~~(CO)~~ relative to the robot (1).

20. (currently amended): ~~Terminal~~The terminal as claimed in claim 19, ~~characterised in that the~~wherein said means for generating graphic information comprise

[[-]] means for generating on the display ~~(D)~~ a first symbol ~~(CO)~~, representative of the reference point,

[[-]] means for generating on the display ~~(D)~~ a second symbol ~~(PR)~~, representative of the robot ~~(1)~~;

[[-]] means for moving the first symbol ~~(CO)~~ relative to the second symbol ~~(RR)~~ using the first key ~~(20)~~, in particular along a substantially circular trajectory ~~(TC)~~.

21. (currently amended): ~~Terminal~~The terminal as claimed in claim 6, ~~characterised in that the~~wherein said means ~~(D; T)~~ for modifying the position of the reference point ~~(CO)~~ are part of a system ~~(T, R)~~ for the automatic recognition of the angular position of the terminal ~~(6)~~ relative to the apparatus ~~(1)~~.

22. (currently amended): ~~Terminal~~The terminal as claimed in claim 21, ~~characterised in that~~wherein the automatic recognition system ~~(T, R)~~ comprises signal emitter means ~~(T)~~ and signal receiving means ~~(R)~~, the signal emitter means ~~(T)~~ being operatively associated to one between the terminal ~~(6)~~ and the robot ~~(1)~~ and the signal receiver means ~~(T)~~ being operatively associated to the other between the terminal ~~(6)~~ and the apparatus ~~(1)~~.

23. (currently amended): ~~Terminal~~The terminal as claimed in claim 1, ~~characterised in that~~wherein said group of keys comprises one or more keys selected in the group consisting of:

[[-]] at least a key ~~(15)~~ for varying the translation velocity of the robot ~~(1)~~, positioned in particular in the right part of the second portion ~~(11)~~, towards the centre thereof;

[[-]] a key ~~(16)~~ for starting a sequence of motions of the robot ~~(1)~~, positioned in particular in the right part of the second portion ~~(11)~~, towards the centre thereof;

[[-]] a key ~~(17)~~ for stopping a motion of the robot ~~(1)~~, positioned in particular in the right part of the second portion ~~(11)~~, towards the centre thereof;

[[-]] a key ~~(18)~~ for selecting a desired co-ordinate system among a plurality of co-ordinate systems, positioned in particular in the left part of the second portion ~~(11)~~, towards the centre thereof;

[[-]] a repetition key ~~(19)~~, which, when pressed, causes the robot ~~(1)~~ to trace back one or more previously executed motions, positioned in particular in the right part of the second portion ~~(11)~~, towards the centre thereof;

[[-]] a key ~~(26)~~ for commanding the execution of individual steps of a previously set sequence of motions of the robot ~~(1)~~, positioned in particular in the right part of the second portion ~~(11)~~, towards the centre thereof;

[[-]] a plurality of programming keys ~~(20-23)~~ positioned in particular in the left part of the second portion ~~(11)~~ and comprising at least multiple cursor keys ~~(20)~~, a data recording key ~~(21)~~, a data modification key ~~(22);~~.

24. (currently amended): ~~Terminal~~The terminal as claimed in claim 1, ~~characterised in that~~wherein in the first portion ~~(10)~~, laterally to the display device ~~(D)~~, are positioned one or more function keys ~~(TF1, TF2, TF3)~~.

25. (currently amended): ~~Terminal~~The terminal as claimed in claim 1, ~~characterised in that~~wherein in correspondence with an end area of the first portion ~~(11)~~ are positioned a key selector ~~(31)~~ and a mushroom head safety push-button ~~(32)~~.